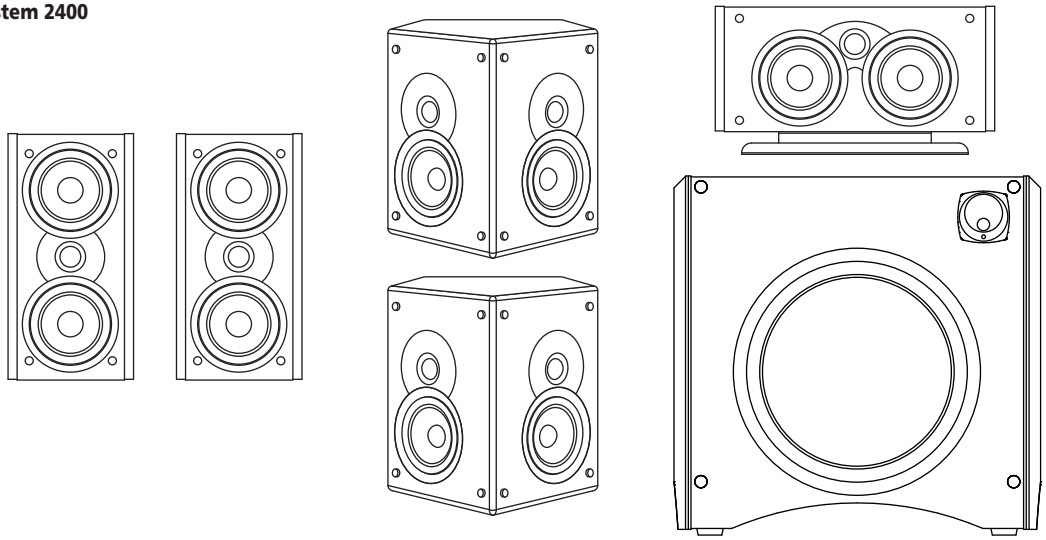
System 1400 and 2400

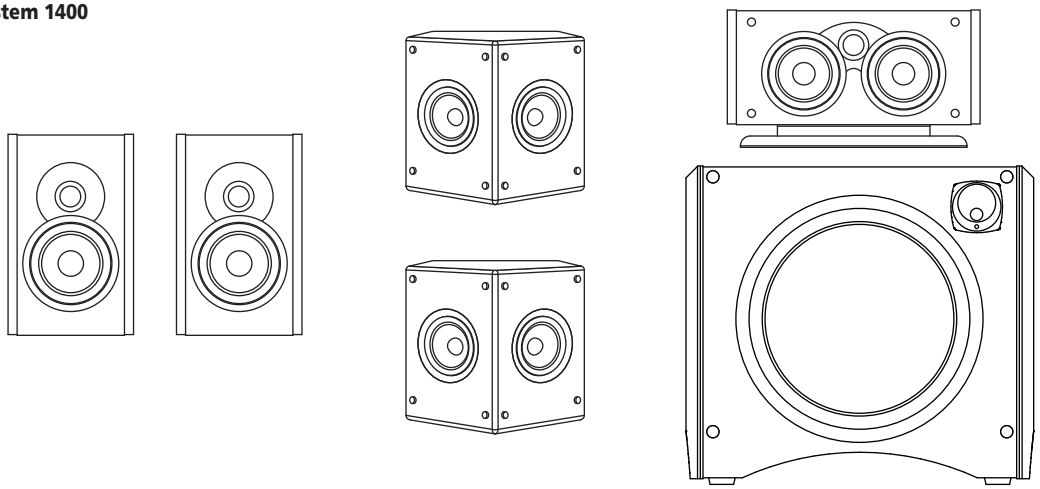
High Performance Loudspeaker Components

Instruction Manual

System 2400



System 1400



Atlantic TECHNOLOGY

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For Future Reference

Record the serial number and date of purchase for each speaker here. The serial number is found on the speaker terminal panel on the back of the enclosure.

Serial Number _____

Serial Number _____

Serial Number _____

Date of Purchase _____

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System 1400 and 2400
High Performance Loudspeaker Components

Thank you for choosing Atlantic Technology products. Your new speaker components are precision-crafted to give you years of enjoyable, trouble-free service. This manual covers the Atlantic Technology System 1400 and 2400 speaker components. It will show you how to incorporate these components into your present setup, as well as how to assemble a complete system from them. The Model 224 SB, 334 SB and 444 SB box-type enclosure subwoofers are covered in detail in a separate manual. These systems can be used with all current and past sound formats including Stereo, Dolby Surround®, Pro Logic IIx®, Dolby Digital 5.1®, Dolby Digital 7.1®, DTS®, and DTS ES®.

IMPORTANT: *Although it may seem like asking for driving directions, please take a few moments to read all of this booklet. It has many helpful tips and ideas on properly setting up and using your system. We promise that if you take the time to read and follow these tips you'll get better system performance and more enjoyment.*

Unpacking the Speakers

Use care when unpacking the speakers. Remember to keep the original boxes and packing material, in the unlikely event the speakers need servicing, or if you move.

Attaching the Grilles

The included metal grilles are held to the front of the enclosures with powerful neodymium magnets. There are depressions on the back of the grille that the magnets fit into. Once the speakers are in their final position. Position the grille over the magnets on the baffle. (See Figure 1) Move them together slowly and when you get close enough, the magnets will draw the grille in and hold it tight. Be careful not to get your fingers caught between the grille and the cabinet.

NOTE: *You will notice a threaded insert onthe back of the LR satellites and SR surrounds. This is for bolting the satellites to speaker stands that utilize a slotted L-bracket. Use a ¼" x 20 bolt to secure the speaker to the stand.*

Individual Component Descriptions

Model 1400 LR and 2400 LR Front Channel Speakers

The Model 2400 LR Front Channel Speakers (Figure 1) are high-performance 2-way systems intended for use with a quality subwoofer, such as the Atlantic Technology Model 224 SB, 334 SB or 444 SB box-type subwoofer. Each speaker contains two GLH (Graphite Loaded Homopolymer) 4 ½" (115mm) woofers and an advanced 1" (25mm) Low Resonanace Tweeter (LRT™) with a powerful neodymium magnet structure. The drivers are configured in an M-T-M array (midrange-tweeter-midrange alignment) This vertical arrangement of drivers provides wide left to right coverage of sound while limiting the floor and ceiling reflections that may color the sound. These components are mounted in an acoustically inert MDF enclosure. The LR speakers are magnetically shielded so they may be placed close to a TV set without concern.

Model 1400 LR speakers are very similar to the 2400 LR speakers, except they employ one 4 ½" GLH woofer instead of two.

Model 1400 C and 2400 C Center Channel Speaker

For accurate reproduction of a multi-channel soundtrack, the three front-channel speakers must have the same sonic signature. Therefore, the 1400 C and 2400 C Center Channel speaker utilize the same driver elements as the respective matching LR speakers (see Figure 2). These speakers are designed to be placed horizontally. They are also magnetically shielded and can be placed directly adjacent to your TV set with no adverse effects on the television's picture. Both can be tilted on their dedicated base to provide optimum sonic coverage of the listening area.

Acoustic Controls

System 1400 C and 2400 C includes unique acoustic controls to help maximize its performance in your room. These controls are explained in greater detail on page 8.

Model 1400 SR-z and 2400 SR Surround Speakers

The Model 2400 SR Dipole/Bipole Surround Speakers (Figure 3) are intended for use in multi-channel audio/video sound systems as dedicated side or back surround channel speakers. The 2400 SR enclosure has two 4 ½" (115mm) GLH woofers and two of the same high performance soft dome tweeters found in the 2400 front speakers. The surround speakers can be switched between Dipole and Bipole operation. These settings are explained on page 8, "Dipole/Bipole Operation of the SR Speakers."

Because of their small size, the model 1400 LR makes an excellent surround speaker. When using it as a surround speaker, the best results will be obtained if the speakers do not aim directly at the listening area. Mount the LR's on the side walls, above and slightly behind the listening position (See page 5).

Figure 1

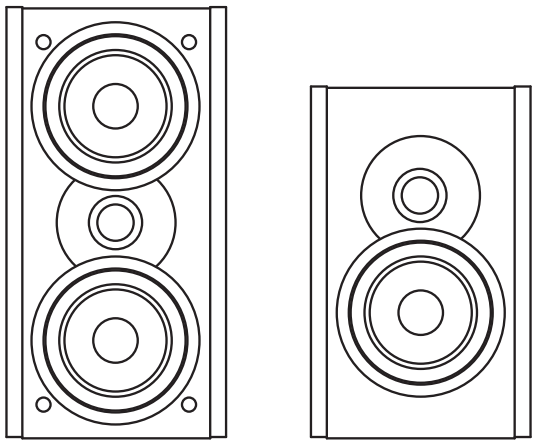


Figure 2

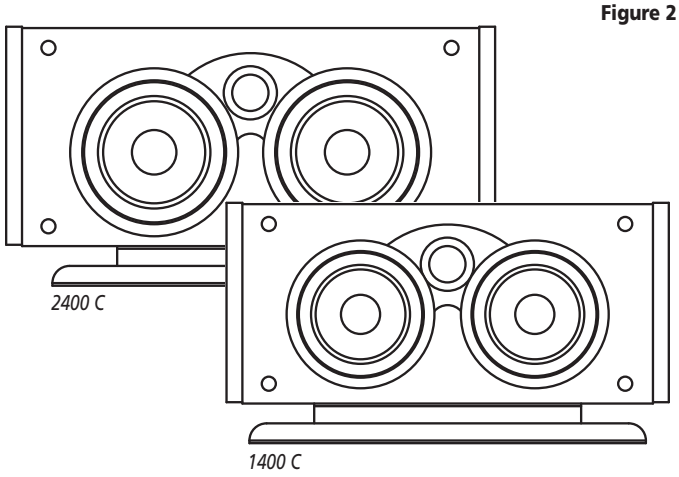
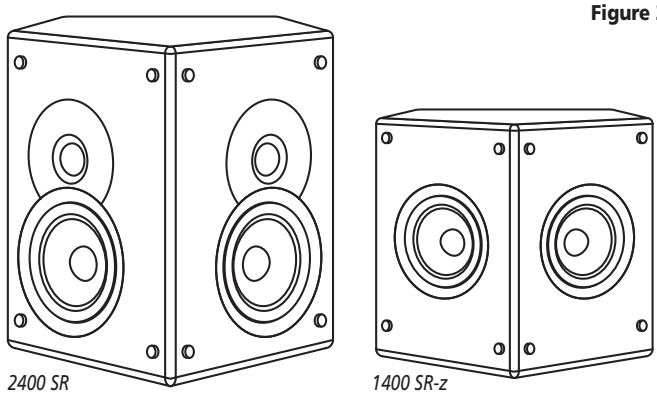


Figure 3



NOTE: *Although the speakers in the Atlantic Technology Systems 1400 and 2400 are acoustically and cosmetically matched to each other for ideal results, they may also be used with other Atlantic Technology components and a wide variety of speakers from other manufacturers with excellent results.*

Placement

Speaker/room interactions have a huge impact on the sound of the system. Moving the speakers just a little can make a dramatic difference in what you hear. Remember that the best acoustic placement of the speakers will vary from room to room. Use the following placement guidelines (see opposite page) as a starting point. But also feel free to experiment. In fact, it may be beneficial to hook up the front LR and surround speakers with some extra wire and to simply drape the wire across the floor before installing the speakers permanently. This will allow you the opportunity to move the speakers around easily so you can find the best sonic and visual locations.

Home Theater

Remember that the primary goal of a good home theater is not to make you believe that you are in a movie theater. It's to make you believe you're in the movie. For a home theater system, place the LR speakers on either side of the television. The three front channel speakers (LR and C) are magnetically shielded so they will not interfere with your television picture. The left and right front speakers should be far enough apart (6 to 10 feet, 2-3 meters, is usually best) that you get a good stereo "image" when they are playing alone, but not so far apart that the sound seems to be disembodied from the TV, distracting you from the picture. When using a center channel speaker, a wider separation of the left and right front speakers is usually possible. You may chose to "toe" the LR speakers in, aiming them approximately at the prime listening position. This can be particularly useful if the front LR speakers are fairly far apart.

IMPORTANT NOTE *Try to keep the LR and C tweeters at approximately the same height and aimed at ear level when seated. This is because we've designed the alignment of the drivers on the front panel to limit the vertical spread of the mid and high frequencies, thereby reducing the floor and ceiling reflections that adversely affect sound quality. If the speakers are too high or too low however, you will miss a significant portion of the upper middle and high range elements of the sound. This alignment of the drivers provides enhanced horizontal spread of the sound making for a much better sound experience for a group of listeners and reducing the need to sit in a precise "sweet spot."*

Surround Effects and Speaker Locations

The 2400 SR's shape allows great flexibility in placement. Due to the switchable Dipole/Bipole design, it's possible to place the speakers almost anywhere within the rear third of the room and get good results. However, the best location for surround speakers is straight out to the sides, or slightly behind the primary listening area, approximately 1-2 feet (.3-.6m) above seated ear level, but no closer than 2 feet (.6m) from the ceiling. As noted above, the surround speakers (as opposed to the back speaker(s) in a 6.1 or 7.1 channel system, see below) are primarily intended to re-create the ambient sounds taking place in the movie scene. Therefore, throughout most of a movie or TV program you may not be consciously aware of output from these speakers. In other words, don't worry if you aren't hearing the surround speakers. Please try to avoid the trap of turning the surrounds up and up so that you hear them most of the time. The result will be a much less believable surround experience.

There are dedicated LEFT and RIGHT model 1400 SR-z and 2400 SR speakers. This is clearly marked on the back of each speaker. Be sure that the Left side surround speaker is placed directly to the left side of the prime listening area (facing the screen) and the Right speaker is directly to the right side.

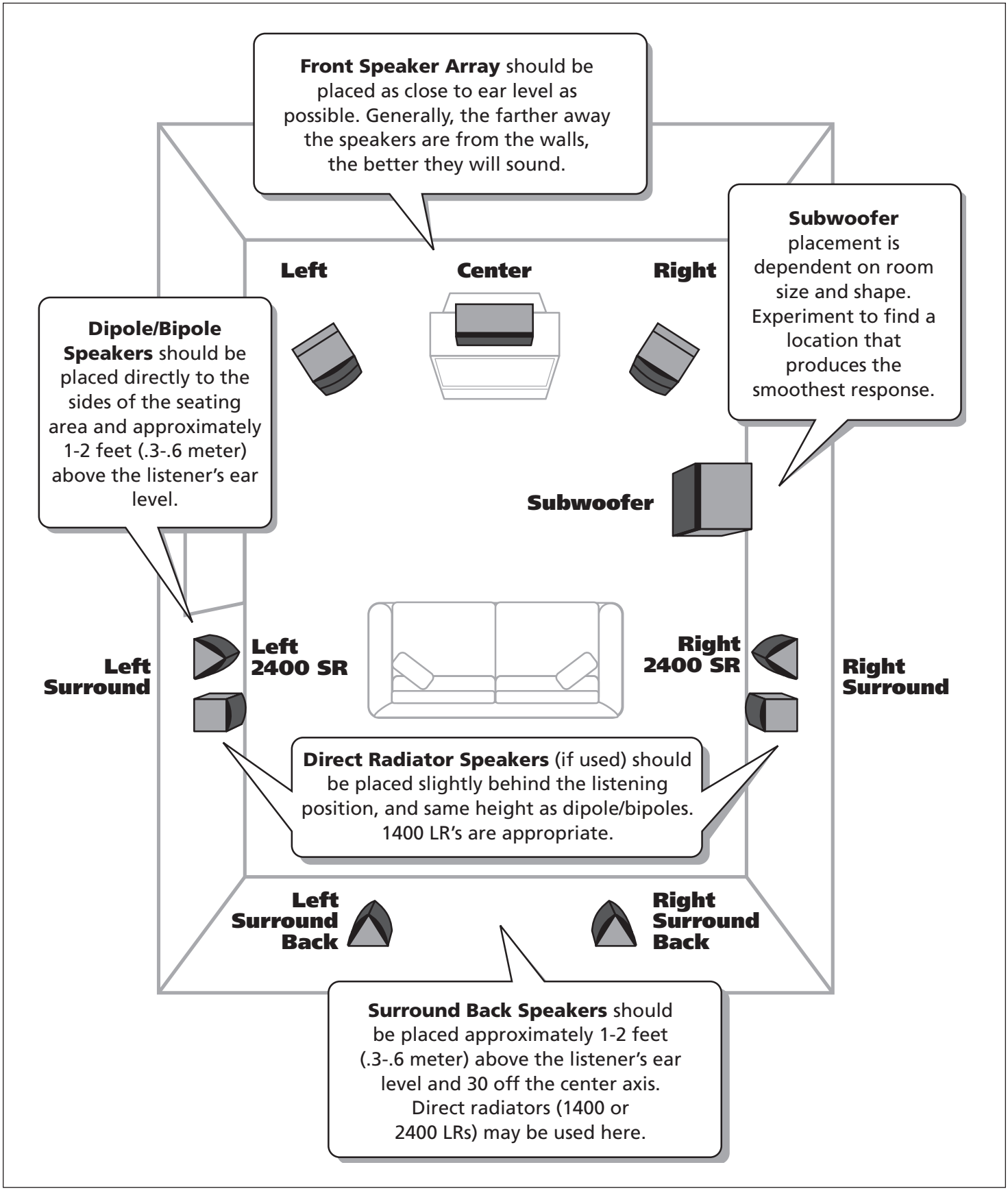
7.1 Channel Systems

For best performance in a 7.1 channel system, we recommend using another pair of 1400 or 2400 LR's on the back wall, and 2400 SR's on the side walls.

If you are setting up a system that uses back surround speaker as well as side surrounds (Dolby Digital 7.1, DTS ES, etc.) you can choose to use either SR model speakers in Dipole or Bipole mode or another pair of front LR speakers in the back of the room. If the 2400 SR's are used as back surrounds in a 7.1 channel system, they should be installed with the Right speaker placed over the listener's left shoulder and the Left speaker placed over the listener's right shoulder. About one-third of the way out from the corners in most rooms is a good starting point.

If you are using a THX Ultra 2 certified controller/receiver, you should place the back surround speakers approximately 1 to 2 feet (.3-.6m) apart in the center of the back wall. The special circuitry in the processor will help to create a believable and effective surround field using this placement. Please read the electronics manual to learn more about this placement option.

Speaker Placement


Front Speaker Array should be placed as close to ear level as possible. Generally, the farther away the speakers are from the walls, the better they will sound.
Left
Center
Right
Subwoofer placement is dependent on room size and shape. Experiment to find a location that produces the smoothest response.
Dipole/Bipole Speakers should be placed directly to the sides of the seating area and approximately 1-2 feet (.3-.6 meter) above the listener's ear level.
Subwoofer
Left Surround
Left 2400 SR
Right 2400 SR
Right Surround
Direct Radiator Speakers (if used) should be placed slightly behind the listening position, and same height as dipole/bipoles. 1400 LR's are appropriate.
Left Surround Back
Right Surround Back
Surround Back Speakers should be placed approximately 1-2 feet (.3-.6 meter) above the listener's ear level and 30 off the center axis. Direct radiators (1400 or 2400 LRs) may be used here.

Stereo Systems

If you are setting up a stereo system using a pair of 1400 or 2400 LR's with subwoofer(s), begin with these general guidelines:

- The distance between the speakers should be approximately one-half their distance from the prime listening position.
- If you point the front of the speakers directly towards the prime listening position ("toe them in"), you will achieve the most precise imaging and the most direct high frequency sound. If you have a "bright" or "hard" sounding room, aiming the speakers straight out into the room (or just aiming them partially towards you) may make for a more natural and pleasing sonic balance.
- For the smoothest upper bass/lower midrange response, the distance from each speaker to its three closest room surfaces should be different.
- In most rooms, you should not place your speakers in the corners.
- Try to keep the speakers at least 2 feet (.6m) from the back and side walls.

The goal is to reproduce the most accurate musical timbre and the most convincing natural sound. Additionally, a well set-up stereo pair of speakers will create excellent imaging and a cohesive representation of the sound-stage. Placement in the room and your listening position has an enormous impact on the ultimate sound you will achieve from your system. The most important thing is to be creative! Try placing your speakers on the long wall instead of the short one. Toe the speakers in or point them straight ahead. Pull them away from the wall or push them closer. Don't be timid. You'll find that moving your speakers, even a few inches, can dramatically change and possibly improve their sound.

Connecting Your System

We recommend that you connect your system using high quality dual conductor stranded wire of 16 gauge or heavier, for lengths up to 25 feet (8m) . Remember, the lower the gauge number, the heavier the wire. Use heavier gauge wire for longer runs. Please contact your audio/video dealer or installer for specific cable recommendations and further information regarding special circumstances. The terminals themselves are designed to allow the use of very heavy speaker wire or connectors. Be sure to tighten them securely, but don't over-tighten them.

WARNING: *To prevent risk of electrical shock or damage to your equipment, always switch off the amplifier or receiver when making any system connections.*

You can connect your speakers by using a variety of audio connectors such as banana plugs, pin connectors, spade lugs, etc., or you can:

1. **Remove ½" (13mm) of insulation from each wire end.**
2. **Twist the stranded wire together, keeping the two ends separate.**
3. **Place the appropriate wire through the postholes in the connectors. These holes are revealed when you loosen the connector's capscrew.**
4. **Screw down the capscrew tightly, but be careful not to over tighten it.**
5. **Check the tightness of the capscrews 24 hours after hookup and occasionally after that, as they can loosen over time.**

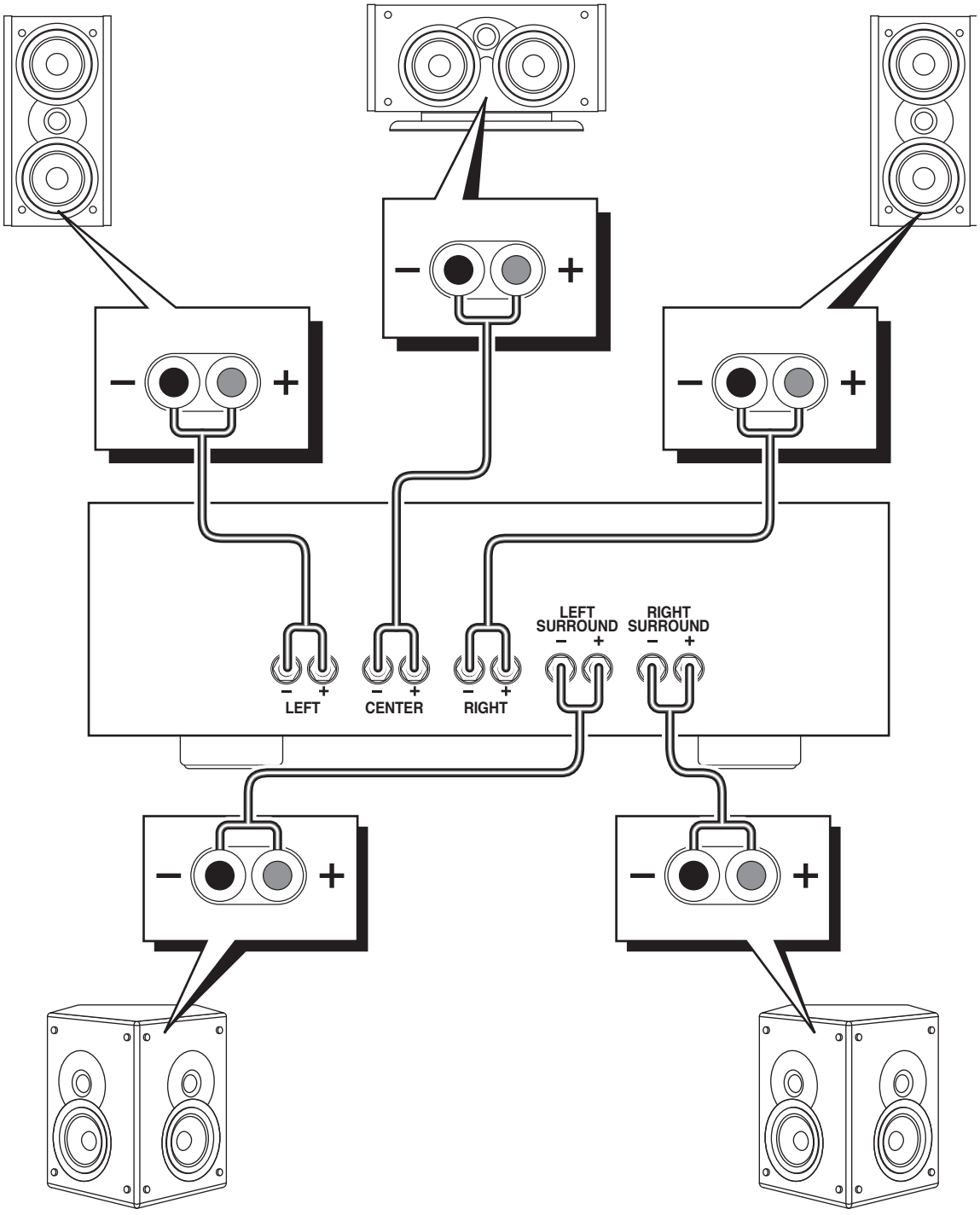
We recommend that you check your local electrical codes to make sure that you are not using improper connectors. It's important to observe polarity while making speaker connections: red (+) terminals on the amplifier to red (+) on the speaker, black (–) on the amplifier to black (–) on the speaker. Look carefully at the wires you are using and note that one of the conductors of each pair will typically be identified by color, printing on the outer jacket, ridges on the outer jacket, or a thread intertwined with the wire strands. By convention, the marked wire is connected to the red (+) terminal. Whether you are connecting a complete system, or adding a single speaker component to your present system, the wiring should look like the system wiring diagrams on the opposite page

WARNING: *Before turning on the amplifier, be certain that no stray wire strands are touching across any terminals as this might damage your amplifier.*

Finally, check the polarity of your front speakers by listening to some stereo music with good bass content. If the sound seems "hollow", unusually spread out, or seem to have weak bass, recheck your connections for proper polarity and correct any out of phase connections, if necessary.

System Wiring

Be sure to connect red (+) on the speaker to red (+) on the amplifier and black (–) on the speaker to black (–) on the amplifier.



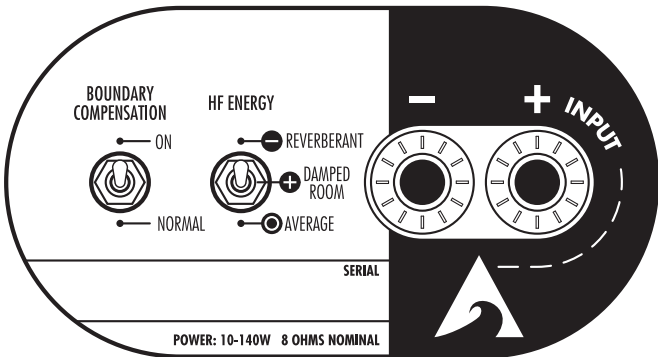
System Setup

Bass Management

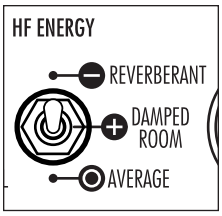
Some older surround sound decoders and receivers offer a choice of "Normal" or "Wide-band" modes for the center channel speaker. The Model 1400 C and 2400 C are designed to be used in the Normal mode. Additionally, digital processing multi-channel systems provide a Bass Management menu, which typically requires you to select between "Small" or "Large" speakers during system set-up. Since these systems have been designed to work with a dedicated subwoofer, please set all the speakers in System 1400 or 2400 to Small.

If your receiver or processor has selectable subwoofer crossover frequencies, we suggest using 80-100Hz for the 2400 and 100-120Hz for the 1400.

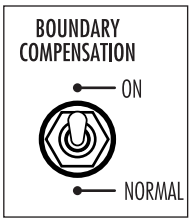
Figure 4



Operation of the Rear Panel Controls on the 1400 C and 2400 C



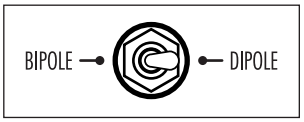
High Frequency Energy This control changes the tilt or roll-off slope of the tweeter. It has been designed to help compensate for different room acoustics. The Average position is intended for rooms with a reasonable combination of reflective (hard) and absorptive (soft) surfaces. The Reverberant position is designed for rooms with an abundance of reflective surfaces like hardwood or tile floors, glass walls, etc. It decreases the high frequency output of the speaker to reduce excess HF energy that builds up in live rooms. The Damped position brings the tweeter's output slightly above flat response to compensate for overly absorbent rooms with lots of soft surfaces. Speakers in overly damped rooms can sound dead and lifeless unless compensated.



Boundary Compensation Use this switch to adjust the lower frequency output of the speaker to compensate for the typical sound colorations caused by placing the speaker close to a TV screen or building it into a wall unit or cabinet. To set these controls, sit in the prime listening position and have someone switch between the compensation choices, using well recorded dialogue or musical instrument recordings. Choose whichever switch position sounds most natural and real to you.

NOTE: *Although these controls have been designed to compensate for various acoustic room anomalies, we recommend that you try them to hear the difference that they make in the sound of the system. For any number of reasons, you may decide that you prefer them set in a particular manner that sounds best to you. Experiment. It will be worth it.*

Dipole/Bipole Operation of the 1400 SR-z and 2400 SR Speakers



In Dipole mode the 1400 SR-z and 2400 SR's produce ambience with minimal localization (best for most movies and video soundtracks), and more localizable sound in the Bipole mode (preferred for some music recordings). Switching between Dipole and Bipole mode is easily accomplished using a toggle switch conveniently located in the speakers rear terminal cup. Please note that the vast majority of the time in movies and TV broadcasts the surround speakers are called upon to reproduce the environmental sounds that are used as cues to help get you immersed in the scene on the screen.

Once the surround speakers are properly positioned in the listening area, we recommend that you begin with the dipole mode, as this usually delivers the most involving and believable surround performance in most situations. However, as noted above, feel free to experiment with both switch positions.

When using as front "height" speakers, we recommend starting in the Bipole mode.

Setting Levels

When setting up a complete home theater we strongly recommend that you use a Sound Pressure Level (SPL) meter. As of this writing Radio Shack® has one that's affordably priced (approximately $40-$60) that can be used effectively. To use this meter, turn on your system, put the processor/receiver in Test Mode and set its main volume control to 0dB (or a reasonably loud level). Sit in the prime listening position, set the SPL meter to the 70dB scale, slow response, and C weighting. Hold the meter with the microphone pointed up, towards the ceiling and in front of you. Cycle the test tone from speaker to speaker, setting each to the same level (usually75dB) using the individual level settings available in the processor/receiver (please see the instructions for your processor/receiver if you are unsure of how to access the test signal or level controls).

IMPORTANT NOTE: *The power recommendation for these speaker systems assumes that you will not operate your amplifier/receiver in a way that produces distortion. Even rugged speakers like these can be damaged by an amplifier driven into audible distortion. The harsh amplifier distortion ("clipping") that occurs in this situation will eventually cause damage to the speaker system. This type of damage may be cumulative and can build up over time, as the amplifier is driven into overload again and again. Such damage is easily identifiable through examination of the damaged speaker's voice coil and is not covered by the warranty.*

These systems will play very loudly when provided with enough undistorted power to do so. If necessary, consult your dealer or Atlantic Technology for additional information.

Mounting

System 1400 and 2400 LR speakers can be mounted in different ways:

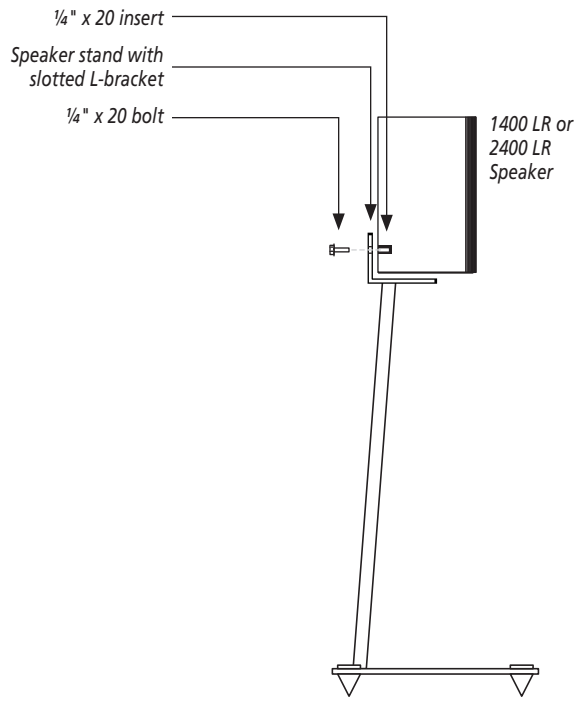
On Stands Speaker stands are recommended to elevate the satellites to the proper position for maximum performance. Many brands of quality speaker stands have a slotted L-bracket that allows the speaker to be securely bolted to the stand. Use the ¼" x 20 insert on the lower back of each speaker to couple the stand directly to the speaker via a ¼" x 20 bolt. This connection is recommended not only for better sound but for safety (especially if you have little ones running around) The recommended stand height is approximately 30". See Figure 5.

On the Wall To mount your LR or SR speakers on a wall, we have supplied metal key-hole brackets attached to the back of the cabinet. These speakers are heavy and care must be used when hanging them. Be sure to use a strong screw to drive into the wall, one whose head and shaft will fit within properly the keyhole opening and slot. Also be sure to drive the screw directly into a stud or to use a mounting device (such a molly-bolt) that is capable of safely holding the speaker's weight. Never simply drive a nail or screw into sheet rock or other wall materials, as the speakers are very heavy for their size.

The speakers' threaded inserts also allow them to be wall-mounted with many of the popular after-market ball and socket-type wall mounts that use ¼" x 20 threaded posts.

NOTE: *Always consult a knowledgeable installer regarding the proper mounting hardware to use with your speakers.*

Figure 5



Care of Your Speakers

Clean your cabinets using a soft, lint-free cloth. If you wish, you can slightly moisten the cloth with plain water. Do not use any other cleaning agents or chemicals. Be careful not to get any water on the driver cones or tweeter domes. After carefully removing the grilles from the speakers by pulling them forward, gently clean them with a quick pass from a vacuum cleaner with a brush attachment. This should remove any dust accumulation. Reattach them by lining up the magnet depressions in the back of the grilles with the magnets on the speaker baffle and slowly moving them closer until they connect with each other.

Avoid placing your speakers in direct sunlight or near a source of heat that may, over time, damage the finish.

IMPORTANT: SAVE YOUR BOXES! *If you can do so, save the cartons, packing pieces, and plastic bags that came with your speakers. They will be useful in case you move or have to ship your loudspeakers for any reason. In any case, save all packing materials until you are certain that the systems have suffered no damage in shipment. If you find such damage, either visible or internal, contact your dealer immediately.*

Specifications

Model	1400 LR	1400 C	1400 SR-z	2400 LR	2400 C	2400 SR
Type	Sealed-box, 2-way	Sealed-box, 2-way M-T-M array	Sealed-box, Dipole/ Bipole surround speaker	Sealed-box, 2-way M-T-M array	Sealed-box, 2-way M-T-M array	Sealed-box, Dipole/ Bipole surround speaker
Drivers Woofer Tweeter	(1) 4 ½" GLH§ (1) 1" LRT soft dome	(2) 4" GLH§ (1) 1" LRT soft dome	(2) 3 ½" Poly-treated full range with HFAR**	(2) 4 ½" GLH§ (1) 1" LRT soft dome	(2) 4 ½" GLH§ (1) 1"LRT soft dome	(2) 4 ½" GLH§ (2) 1" soft dome
Frequency Response	90Hz – 20kHz ±3dB	95Hz – 20kHz ±3dB	110Hz – 20kHz ±3dB	90Hz – 20kHz ±3dB	90Hz – 20kHz ±3dB	90Hz – 20kHz ±3dB
Nominal Impedance	8 Ohms	8 Ohms	8 Ohms	8 Ohms	8 Ohms	8 Ohms
Crossover Frequency	2.5kHz, 3rd order	2.3kHz, 3rd order	N/A	2.3kHz, 3rd order	2.3kHz, 3rd order	3.5kHz, 2nd order
Sensitivity	88dB	89dB	89dB	90dB	90dB	90dB
Recommended Amplifier Power	10 – 100 Watts RMS	10 – 125 Watts RMS	10 – 100 Watts RMS	10 – 140 Watts RMS	10 – 140 Watts RMS	10 – 140 Watts RMS
Magnetic Shielding	Yes	Yes	No	Yes	Yes	No
Dimensions w/ grilles (W x H x D)	6⅜ x 10½ x 7" 160 x 265 x 177mm	12½ x 7⅛ x 6⅝"* 316 x 181 x 168mm	12¼ x 8 x 5⅜" 312 x 203 x 137mm	6⅜ x 12 15⁄16 x 7" 160 x 325 x 177mm	14⅝ x 7½ x 7"* 370 x 191 x 178mm	11⅛ x 10½ x 7½" 283 x 265 x 191mm
Weight (ea)	5lbs; 2.2kg	8 lbs; 3.7kg	7lbs; 3.2kg	9lbs; 4kg	9lbs; 4kg w/base	12lbs; 5.5kg

§*Graphite Loaded Homopolymer*

**Height includes tilt base.*

***High Frequency Assistive Radiator*

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